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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,700	12/02/2004	Tomonao Kawashima	OOCL-188 (PC-P1821US)	6889

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EXAMINER

BOR, HELENE CATHERINE

ART UNIT	PAPER NUMBER
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3768

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10/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/516,700

Applicant(s)

KAWASHIMA ET AL.

Examiner

Helene Bor

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2007.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 12-22, 24-26 and 28-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8, 12-22, 24-26 and 28-32 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 02 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/02/2007.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Ultrasonic Tomographic Diagnostic Apparatus.

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1-8, 12-14, 16, 18-22, 24-26 & 28-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Holupka'529 et al. (US Patent No. 6,256,529 B1).

Claim 1: Holupka'529 teaches an ultrasonic diagnostic apparatus obtaining plural ultrasonic tomographic images at a process that an ultrasonic probe moves and scans within a body cavity of a body to be examined, the apparatus comprising (Col. 1, Line 11-16, Col. 4, Line 20-24, 54-60 & 63-66): position information detecting means for detecting position information of plural ultrasonic tomographic images obtained in a process that the ultrasonic probe moves within a body cavity of a body to be examined (Col. 9, Line 17-20 & Figure 1A, Element Angle Positioner, Image Probe Digital Position Data & Longitudinal Positioner); and tomographic parallel images constructing means for constructing plural tomographic parallel images arranged along a scan path of the ultrasonic probe based on the position information obtained by the position information detecting means (Col. 5, Line 19-27, Figure 1A, Element 14, Figure 5A).

Claim 2/1: Holupka'529 teaches the ultrasonic diagnostic apparatus, further comprising display control means for causing display means to display the ultrasonic tomographic image and the tomographic parallel images so as to compare (Figure 1A, Element 16 & Display 2D Image Slices and 3D Volumes).

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Claim 3/1: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the tomographic parallel images constructing means constructs new tomographic parallel images by overwriting pixels corresponding to the tomographic parallel images with the pixels corresponding to the ultrasonic tomographic image every time when the ultrasonic tomographic image is created in the process that the ultrasonic probe moves and scans within a body cavity of a body to be examined [Not saving overwrites] (Col. 5, Line 2-15, 42-44 & 64-67).

Claim 4: Holupka'529 teaches an ultrasonic diagnostic apparatus obtaining plural ultrasonic tomographic images in a process that an ultrasonic probe moves within a body cavity of a body to be examined, the apparatus comprising (Col. 1, Line 11-16 & Col. 4, Line 20-24, 54-60 & 63-66): position and direction detecting means for detecting positions and directions of plural ultrasonic tomographic images (Col. 9, Line 17-20 & Figure 1A, Element Angle Positioner, Image Probe Digital Position Data & Longitudinal Positioner); and tomographic parallel images constructing means for constructing tomographic parallel images arranged along a scan path based on the positions and the directions (Col. 5, Line 19-27, Figure 1A, Element 14, Figure 5A).

Claim 5/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, further comprising display means displaying the ultrasonic tomographic image and the tomographic parallel images so as to compare them (Figure 1A, Element 16 & Display 2D Image slices and 3D Volumes & Figure 5A).

Claim 6/5/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the display means displays the ultrasonic tomographic image and the tomographic parallel

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images on one screen [monitor (singular)] so as to compare them (Col. 4, Line 44-46, Figure 1A, Element 16 & Display 2D Image slices and 3D Volumes & Figure 5A).

Claim 7/5/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the display means displays on the tomographic parallel images an ultrasonic tomographic image marker indicating a position of the ultrasonic tomographic image (Col. 5, Line 19-27).

Claim 8/7/5/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, further comprising ultrasonic tomographic image marker setting means for setting a position of the ultrasonic tomographic image marker, wherein the display means selects and displays the ultrasonic tomographic image in accordance with a position of the ultrasonic tomographic image marker set by the ultrasonic tomographic image marker setting means (Col. 5, Line 19-27, Col. 6, Line 30-41, Figure 1A, Element 16 & Display 2D Image slices and 3D Volumes & Figure 5A).

Claim 12/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the display means displays the tomographic parallel images and an indicator indicating a direction of the tomographic parallel images with respect to the position and direction detecting means (Col. 5, Line 19-27, Col. 6, Line 30-41, Figure 1A, Element 16 & Display 2D Image slices and 3D Volumes & Figure 5A).

Claim 13/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the tomographic parallel images constructing means constructs new tomographic parallel images by overwriting the tomographic parallel images with pixels on the ultrasonic tomographic image every time when the ultrasonic tomographic image is created in a

process that an ultrasonic probe moves within a body cavity of a body to be examined [Not saving overwrites] (Col. 5, Line 2-15; 42-44 & 64-67).

Claim 14/13/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the tomographic parallel images constructing means determines pixels to be overwritten based on the position and direction detected by the position and direction detecting means [Not saving overwrites] (Col. 5, Line 2-15, 42-44 & 64-67).

Claim 16/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the ultrasonic probe constitutes an electronic radial scan type ultrasonic endoscope performing electronic radial scanning (Col. 4, Line 54-60 & Col. 5, Line 2-5).

Claim 18/4: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the ultrasonic probe constitutes a convex scanning type ultrasonic endoscope performing convex scanning (Col. 5, Line 5-9).

Claim 19: Holupka'529 teaches an ultrasonic diagnostic apparatus moving an ultrasonic transducer within a body cavity of a body to be examined and creating plural chronological tomographic images in accordance with the movement, the apparatus comprising (Col. 1, Line 11-16, Col. 4, Line 20-24, 54-60 & 63-66): position information detecting means for detecting position information of the ultrasonic transducer when the tomographic images are obtained; and auxiliary image creating means (Col. 5, Line 19-27) for creating an auxiliary image indicating position information of the tomographic images along a path of the movement of the ultrasonic transducer based on position information obtained by the position information detecting means and the tomographic images corresponding to the position information (Figure 1A, Element 16 & Display 2D

Image slices and 3D Volumes & Figure 5A).

Claim 20/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, further comprising display control means for displaying the auxiliary image and a tomographic image corresponding to the auxiliary image so as to compare them (Figure 1A, Element 16 & Display 2D Image Slices and 3D Volumes).

Claim 21/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the auxiliary image creating means creates the auxiliary image including a plate-like ultrasonic image marker [tags] expressing a position and direction of the tomographic image (Col. 5, Line 19-27, Col. 6, Line 30-41, Figure 1A, Element 16 & Display 2D Image slices and 3D Volumes & Figure 5A).

Claim 22/20/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the display control means causes display of the auxiliary image and a tomographic image corresponding to the auxiliary image on the same screen (Figure 1A, Element 16 & Display 2D Image slices and 3D Volumes & Figure 5A).

Claim 24/20/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein: the auxiliary image creating means creates plural auxiliary images for indicating position information of the tomographic images from different directions; and the display control means causes display of the auxiliary images on the same screen [monitor (singular)] so as to compare them (Col. 4, Line 44-46, Figure 1A, Element 16 & Display 2D Image slices and 3D Volumes & Figure 5A).

Claim 25/21/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the auxiliary image creating means creates the auxiliary image by synthesizing the plural

ultrasonic image markers and a locus marker of the ultrasonic transducer, which is created by sequentially connecting the ultrasonic image markers (Col. 5, Line 19-27 & Col. 6, Line 30-41).

Claim 26/21/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the auxiliary image creating means superimposes a direction marker indicating a specific direction of a corresponding tomographic image on the ultrasonic image marker (Col. 5, Line 19-27 & Abstract).

Claim 28/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the auxiliary image creating means creates the auxiliary image including the plural ultrasonic image markers arranged along a path of movement of the ultrasonic transducer, and makes a display form of the ultrasonic image marker corresponding to the tomographic image displayed for comparison among the plural ultrasonic image markers different from a display form of the other ultrasonic image markers (Col. 5, Line 19-27, Col. 6, Line 30-41, Figure 5A & Figure 1A, Element Angle Positioner, Image Probe Digital Position Data & Longitudinal Positioner).

Claim 29/28/19: The ultrasonic diagnostic apparatus according to claim 28, further comprising input means instructing changing a tomographic image to be displayed among the plural tomographic images recorded in the recording means, wherein the auxiliary image creating means changes the ultrasonic image marker to a different display form in connection with a change in the tomographic image to be displayed (Col. 5, Line 64-67, Col. 6, Line 30-41 & 47-63 & Figure 1A, Element 16).

Claim 30/20/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the

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auxiliary image creating means creates the auxiliary image including a marker indicating a coordinates system, which is a reference for creating the ultrasonic image markers (Col. 5, Line 19-27).

Claim 31/30/20/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, further comprising input means instructing changing a direction of displaying the auxiliary image, wherein the auxiliary image creating means changes a direction of displaying the auxiliary image as well as the marker indicating the coordinates system based on the instruction from the input means (Col. 5, Line 19-27 & Col. 6, Line 30-41 & 47-63).

Claim 32/19: Holupka'529 teaches the ultrasonic diagnostic apparatus, wherein the position information detecting means calculates the position information based on a coordinates system with reference to a body to be examined (Figure 1A, Element Angle Positioner, Image Probe Digital Position Data & Longitudinal Positioner).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 15 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holupka'529 et al. (US Patent No. 6,256,529 B1).

Claim 15/4: Holupka'529 fails to specifically teach mechanical radial scanning.

However, Holupka'529 teaches that any commercially available system will suffice (Col. 4, Line 60-62). Thus, it would have been obvious to one of ordinary skill in the art to use another commercially available ultrasound system at the time of the invention such as a mechanical radial scan type ultrasonic endoscope performing mechanical radial scanning at the time of the invention such as the ultrasound system of US Patent No. 6,267,727 (Col. 1, Line 34-57).

Claim 17/4: Holupka'529 fails to specifically teach ultrasonic probe constitutes a capsule ultrasonic endoscope. However, Holupka'529 teaches that any commercially available system will suffice (Col. 4, Line 60-62). Thus, it would have been obvious to one of ordinary skill in the art to use another commercially available ultrasound system at the time of the invention such as ultrasound system of US Patent Application No. 2001/0051766 (Figure 3, Element 300).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Gazdzinski, Robert F. Endoscopic smart probe and method 20011213 US 20010051766 A1
- b. Hirooka, Kenji et al. Ultrasonic probe for operation under microscope 20040311 US 20040049111 A1

- c. Kessman, Paul et al. Method of detecting organ matter shift in a patient, 20040325 US 20040059217 A1
- d. Kimchy, Yoav et al. Radioactive emission detector equipped with a position tracking system 20040318 US 20040054248 A1

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Bor whose telephone number is 571-272-2947. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

hcb


ELENI MANTIS MERCADER
SUPERVISORY PATENT EXAMINER